

REMARKS

Entry of the foregoing, further and favorable consideration of the foregoing claim amendments, pursuant to and consistent with 37 C.F.R. § 1.111, are respectfully requested.

Status

As is correctly indicated in the Office Action Summary, Claims 1-46 are pending. Claims 1-20, 23-28, 38, and 41 have been withdrawn from consideration as purportedly drawn to a nonelected invention. Claims 21, 22, 29-37, 39, 40, and 42-46 stand rejected. Claims 22 and 35 are objected to.

Summary of Claim Amendments

By the foregoing amendments, Claims 22 and 35 have been amended to corrected minor, typographical, and/or stylistic matters. Specifically, these claims have been amended to remove the periods following the lower case Roman numeral identifiers and to add letters surrounded by parentheses in their place. No new matter has been added by these amendments.

Further by the foregoing amendments, Claim 22 has been amended to specify that the method is directed to screening nucleation tendency of a molecule in a fluid. Claim 22 has been further amended to specify that the nucleation tendency is detected by multi-angle light scattering in combination with Raman spectroscopy to obtain a quantitative measurement of turbidity, precipitate, and/or aggregate formation in said droplet, while the concentrations of substances in the levitated droplet is gradually increased over time by means of either droplet evaporation or

addition of precipitants and utilizing the vibration-induced streaming caused by the ultrasound to further the precipitation in the droplet. Support for these amendments may be found throughout the Specification, and at least at: Page 1, Lines 4-8; Page 8, Lines 22-25; Page 8, Line 31 to Page 9, Line 7; Page 13, Lines 31-38; Page 19, Lines 23-34; Page 30, Lines 19-20, of the Specification; and in Original Claims 1, 3, and 4. Accordingly, no new matter has been added.

Rejection Under 35 U.S.C. § 103(a) Over Arnowitz In View Of Danley And Schwartz

Claims 21, 22, 29-36, 39, 40, and 42-46 were rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over U.S. Patent Application Publication No. 2004/0033166 A1 to Arnowitz *et al.* ("Arnowitz") in view of U.S. Patent No. 5,036,944 to Danley *et al.* ("Danley") and A.M. Schwartz *et al.*, "The use of Raman spectroscopy for *in situ* monitoring of lysozyme concentration during crystallization in a hanging drop," 203 JOURNAL OF CRYSTAL GROWTH 599-603 (1999) ("Schwartz"). See *Official Action*, Pages 5-13. This rejection is respectfully traversed.

To establish a *prima facie* case of obviousness, three basic criteria must be met: (1) there must be some suggestion or motivation to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference(s) must teach or suggest all of the claim limitations. See *MPEP* § 2142.

When applying 35 U.S.C. § 103, four tenets of patent law must be adhered to: (1) the claimed invention must be considered as a whole, (2) the references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination, (3) the references must be viewed without the benefit of

impermissible hindsight vision, and (4) a reasonable expectation of success is the standard with which obviousness is determined. See *MPEP* § 2141, citing *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 (Fed. Cir. 1986).

Moreover, mere identification of each claimed element in the prior art is NOT sufficient to negate patentability. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). Instead, there "must be a teaching or suggestion within the prior art, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources of information, to select particular elements, and to combine them in the way they were combined by the inventor." *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 536 (Fed. Cir. 1998). Otherwise, sophisticated scientific fields would rarely, if ever, experience a patentable technical advance. *Rouffet*, 149 F.3d at 1357.

Applicants respectfully submit that a *prima facie* case of obviousness has not been made out. It is error to reconstruct Applicants' claimed invention from the prior art by using the Applicants' claim as a blueprint. See *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1139 (Fed. Cir. 1985). "When prior art references require selective combination . . . to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight obtained from the invention itself." *Interconnect*, 774 F.2d at 1143.

Here, no reason for the combination of Arnowitz, Danley, and Schwartz was provided. As admitted by the Examiner, Arnowitz "does not teach the use of at least one levitator for positioning at least one droplet, but rather relies upon separate chambers to accommodate small sample quantities of the molecule to be crystallized in recognition of the desirability to meet demands of sample cost and availability."

See Official Action, Page 7. The invention of Arnowitz relies on "dynamic dialysis units," which comprise "essentially the sample chamber and the reagent chamber fluidly connected via a semipermeable membrane, together with fluidics and controls." *See Arnowitz, Paragraph 0075.* As indicated by the Examiner, a positive aspect of the Arnowitz invention is that "the total quantity of protein required to obtain good quality crystals is reduced by avoiding the need to repeat screening trials due to protein precipitation in many of the screening conditions directly related to excess salt concentrations." *See Arnowitz, Paragraph 0095.*

Applicants respectfully submit that nothing in Arnowitz would prompt one of skill in the art to stray from its separate chambers system, especially in view of the purported advantages thereof.

Moreover, even if one were somehow prompted to alter the system of Arnowitz, there is no evidence of why one would select and then modify the disclosure of Danley in doing so. Danley seeks "to provide an acoustic levitation device which is not dependent upon factors such as temperature variations, tuned chambers, or positioning of reflectors, while allowing complete freedom to move or otherwise manipulate the levitated object." *See Danley, Col. 1, Line 65 to Col. 2, Line 2.* Danley notes that applications for acoustic levitation are numerous and varied, including "containerless melting" and "manufacturing processes in outer space by preventing draft of materials being processed in zero gravity." *See Danley, Col. 1, Lines 9-29.*

Applicants respectfully submit that there is nothing in Danley itself to prompt one of skill to modify the disclosure of Danley, let alone select and modify Arnowitz as well.

Schwartz does not cure the deficiencies of Arnowitz and Danley. Schwartz is directed to monitoring lysozyme concentration during crystallization in a hanging drop experiment in real time. See *Schwartz, Abstract*. Schwartz concludes that the assertion "[f]iber optic Raman spectroscopy combined with a partial least-squares regression model" "method is noninvasive to the lysozyme within the hanging drop" is "defendable." See *Schwartz, Abstract and Page 602, Conclusion*. However, nothing in Schwartz prompts one of skill in the art to select a crystallization method or an acoustic levitator, let alone prompts that person of skill to modify each selected entity.

In summary, Applicants respectfully assert that at least the first criterion for *prima facie* obviousness, that there is some suggestion or motivation to modify the reference or to combine reference teachings, has not been met in this case. Applicants believe the Examiner has used Applicants' invention as a blueprint and has simply selectively culled portions of the cited publications to arrive at Applicants' invention.

Because mere identification of each claimed element in the prior art is NOT sufficient to negate patentability, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of Claims 21, 22, 29-36, 39, 40, and 42-46 over Arnowitz in view of Danley and Schwartz.

Rejection Under 35 U.S.C. § 103(a) Over Arnowitz In View Of Danley, Schober, And Schwartz

Claims 21, 35, 36, 37, 39, and 42 were rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over Arnowitz in view of Danley, A. Schober *et al.*, "Accurate high-speed liquid handling of very small biological samples," 15(2) BIOTECHNIQUES 324-329 (Aug. 1993) ("Schober"), and Schwartz. *See Official Action, Pages 13-15.* This rejection is respectfully traversed.

The deficiencies of Arnowitz, Danley, and Schwartz are discussed above. Applicants respectfully assert that Schober does not cure these deficiencies. The Examiner maintains that Schober "taken as a whole teaches using a piezoelectric dispenser for the accurate microdispensation of biochemically relevant solutions and suspensions" and that "the disclosed piezoelectric transducer device provides dispensation of very small volumes without any detectable impact on the biological function of dissolved or suspended molecules." *See Official Action, Page 14.*

Applicants respectfully assert that Schober does not overcome Arnowitz's, Danley's, and Schwartz's defects of failing to provide "some suggestion or motivation to modify the reference or to combine reference teachings," *i.e.*, the first criterion for *prima facie* obviousness still is not met. Again, Applicants believe the Examiner has used Applicants' invention as a blueprint and has simply selectively culled portions of publications to arrive at Applicants' invention.

In light of the foregoing, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of Claims 21, 35, 36, 37, 39, and 42 over Arnowitz in view of Danley, Schober, and Schwartz.

CONCLUSION

In the event that there are any questions relating to this amendment and response to restriction requirement, or the application in general, it would be greatly appreciated if the Examiner would telephone the undersigned attorney concerning such questions so that prosecution of this application may be expedited.

Respectfully submitted,
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